

REMARKS

Claims 1-17 remain pending in this application. Claims 1 and 7 are independent. Claims 1-17 have been amended only for clarity, and specifically not to overcome any art of record.

Withdrawal of the objection to the Drawings is requested. Responsive to the Examiner's stated basis for objection, a Replacement Drawing Sheet is attached herewith to clarify the location of previously hand-written relief angle " γ " and cutting angle " α ". Entry of the Replacement Drawing Sheet is requested.

Withdrawal of the rejection of claims 1-6 and 8-17 under 35 U.S.C. §112, second paragraph, as being indefinite, is requested. Responsive to the Examiner's stated bases for rejection, the rejected claims have been amended in a manner which is believed to render the rejections for indefiniteness moot. Pending claims 1-17 have been further amended to place the claims in a form more customary for U.S. practice. No new matter is involved with any claim amendment.

Withdrawal of the rejection of claims 1-5 and 7-13 under 35 U.S.C. §103(a) as being unpatentable over Beaty et al. (US 5,727,943) in view of Wagner et al. (US 5,897,319) is requested. The applied art, either alone or in combination, does not teach or suggest all the claim limitations.

At the outset, Applicant notes that, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, ***the prior art reference must teach or suggest all the claim limitations.***¹ Further, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure.²

¹ See MPEP §2143.

² *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) and See MPEP §2143.

By way of background, and with respect to the disclosed and claimed invention, there is a general need to provide good cutting characteristics on the implant to allow fitting without preliminarily threading in the bone, which requires that the implant has to be designed with a thread-cutting portion which is formed with a special cutting geometry. In connection with various embodiments of Applicants' invention, use of dense threading is avoided, as this entails a low insertion speed. In contrast, sparse threading is likewise to be avoided, as this approach entails small thread surfaces in contact with the bone tissue and, consequently, poor conditions for successful osseointegration. If the thread is given a deep profile, it is possible to compensate for this, but at the expense of the implant's overall strength.

The use of double threads is not completely free of problems either, in this context, since a double thread, at each moment of insertion, must cut away twice as much bone, which means that the double-threaded implant meets considerably greater bone resistance – theoretically, approximately twice as great.

Further, an implant can always be fitted using a thread tap, but a double-threaded design does not then represent any simplification or time saving.

Applicants' disclosed and claimed invention solves the above problems, and provides an approach in which the implant has excellent cutting characteristics that allow fitting without preliminary threading in the bone. In these types of implants, the implants must have sufficient strength, which is especially important in hard bone, where resistance to screwing-in can be considerable. This need is often in conflict with the requirement for a suitable cutting geometry or thread design.

In applicants' disclosure, the cutting angle α between the radius r and edge 1a in FIG. 2, for example, and the relief angle γ between the real line 3ed of member 3 and circular part 3c are cooperatively and interactively selected to meet the functional requirements of the improved implant. By the relief function being accomplished by the relief angle γ , the resistance to implant insertion is reduced, and the strength of the implant is increased.

As for the claimed invention, the applied art, either alone or in combination, in particular does not teach or suggest a self-tapping implant for use in a bone, preferably a jawbone, wherein the implant provides that, among other features, "...each cutting edge of a number of associated cutting edges of the materially reduced threads [has] a pointed shape which, in a cross section thereof, essentially follows a line which deviates from a first radius through a point of the pointed shape of the respective remaining thread part, wherein a cutting edge on a first remaining thread part merges via a second radius into a rear edge on a second remaining thread part arranged before the first thread part in an implant screwing direction...[and] wherein full radius portions of the plural threads within the conically tapering portion are engaged with the bone to provide a threading relief function during the tapping operation", as recited in independent claim 1, as amended.

Further, the applied art, either alone or in combination, in particular does not teach or suggest a self-tapping implant for use in a bone, preferably a jawbone, wherein the implant provides that, among other features, "...wherein each cutting edge of a number of the materially reduced threads has a pointed shape which, in a cross section thereof, essentially follows a line which deviates from a first radius through a remaining thread part front portion,... wherein a straight part on a first remaining thread part merges via a second radius into a straight rear edge on a second remaining thread part, arranged before the first thread part in a direction of screwing of the implant, wherein the second radius is arranged to optimize a remaining material in the body and remaining thread parts and, consequently, a holding strength of the self-tapping implant", as recited in independent claim 7, as amended.

As the applied art does not teach or suggest all the claimed limitations of independent claims 1 and 7, reconsideration and allowance of these claims are requested. In addition, as dependent claim 2-6 and 8-17 variously and ultimately depend from allowable claim 1, reconsideration and allowance of these dependent claims are also requested.

Applicants note with appreciation that dependent claims 6 and 14-17 are drawn to allowable subject matter. However, considering the clarifying amendment to independent claim 1, amendment of these claims into independent form is not believed to be necessary at this time.

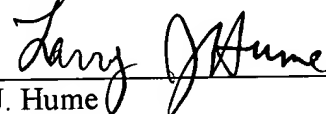
In view of the above, each of the presently pending claims 1-17 in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

In the event that the Examiner believes that an interview would serve to resolve any remaining issues in this application, the undersigned attorney is available at the telephone number indicated below.

For any fees that are due with this response, including fees for extensions of time, please charge CBLH Deposit Account No. 22-0185, under Order No. 21547-00280-US from which the undersigned is authorized to draw.

Respectfully submitted,

By



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Attachment: Replacement Drawing Sheet(1)